

MISSION OPERATIONS AND DATA SYSTEMS DIRECTORATE



STS-81 S/MM-05 SPACEHAB-DM FLIGHT READINESS REVIEW

NETWORKS



AGENDA

- INTEGRATED NETWORK
- TDRSS CONSTELLATION
- LAUNCH COVERAGE
- ORBITER/MIR COVERAGE
- ZOE COVERAGE
- LANDING COVERAGE
- SIGNIFICANT CHANGES
- STS-80 NETWORKS ANOMALIES
- CONFIGURATION MANAGEMENT
- READINESS CERTIFICATION

GARY A. MORSE
GSFC/NETWORKS
JANUARY 1997

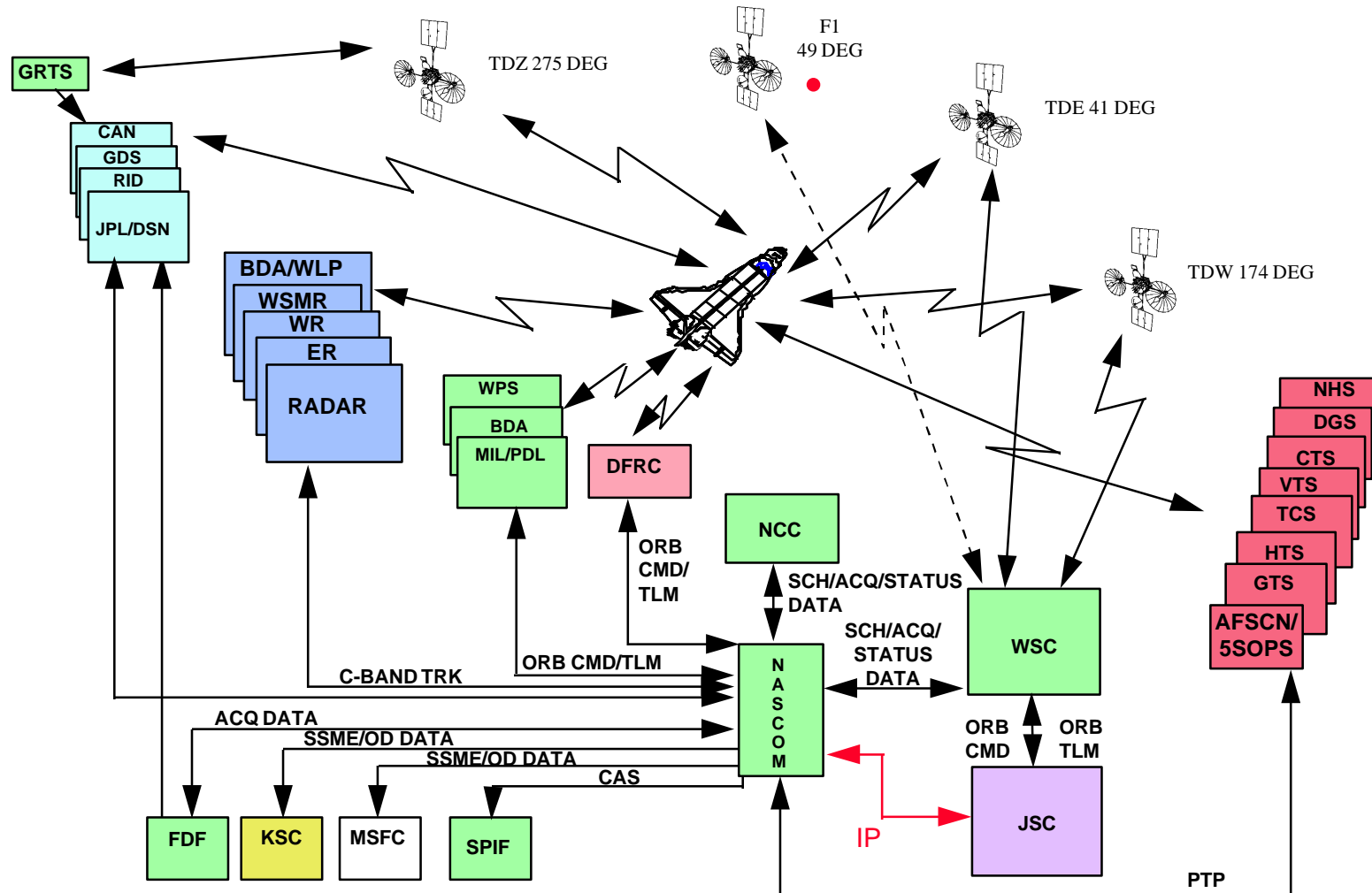
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STS-81 INTEGRATED NETWORK



● BACKUP LAUNCH SUPPORT

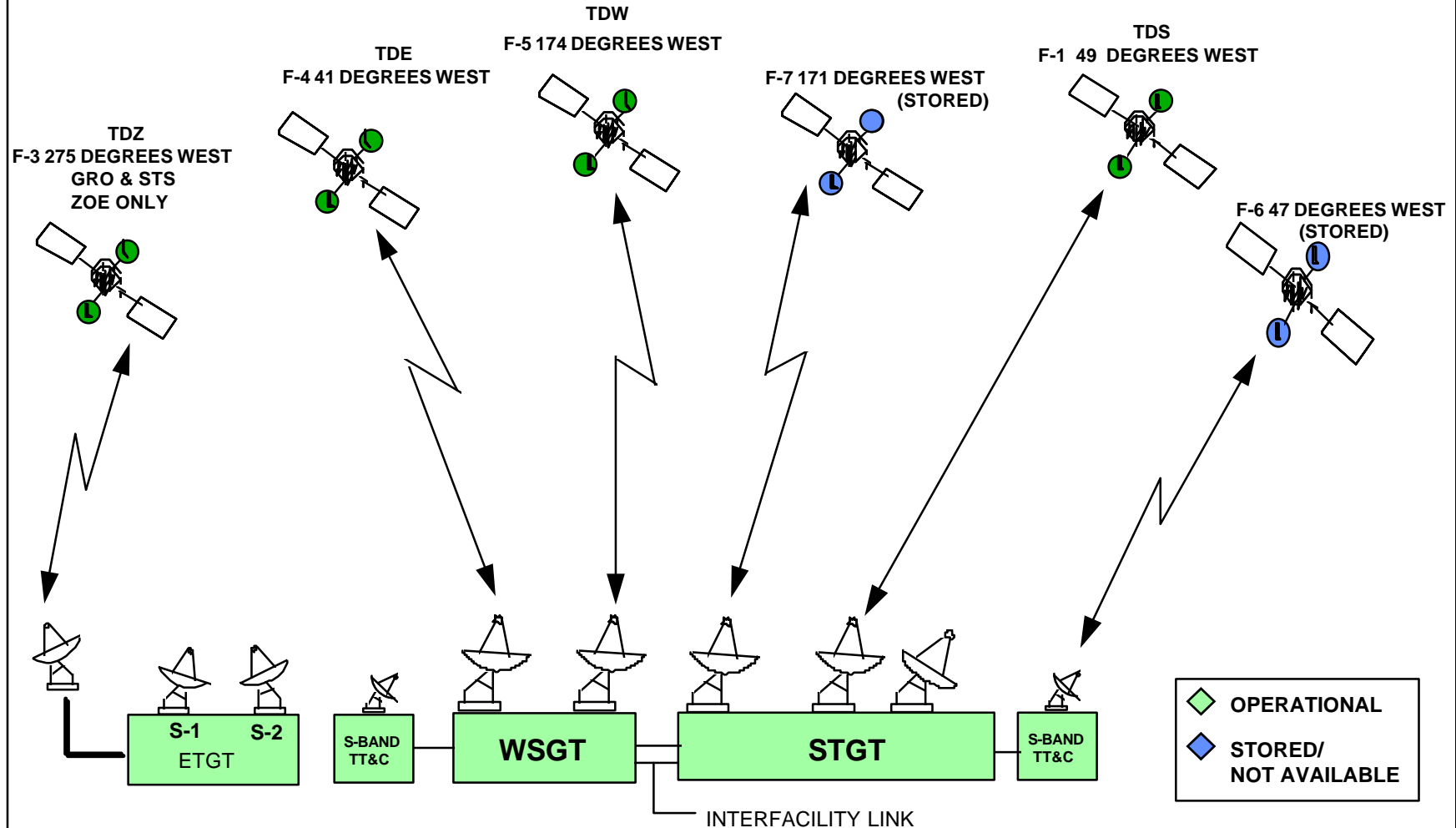
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TDRSS CONSTELLATION



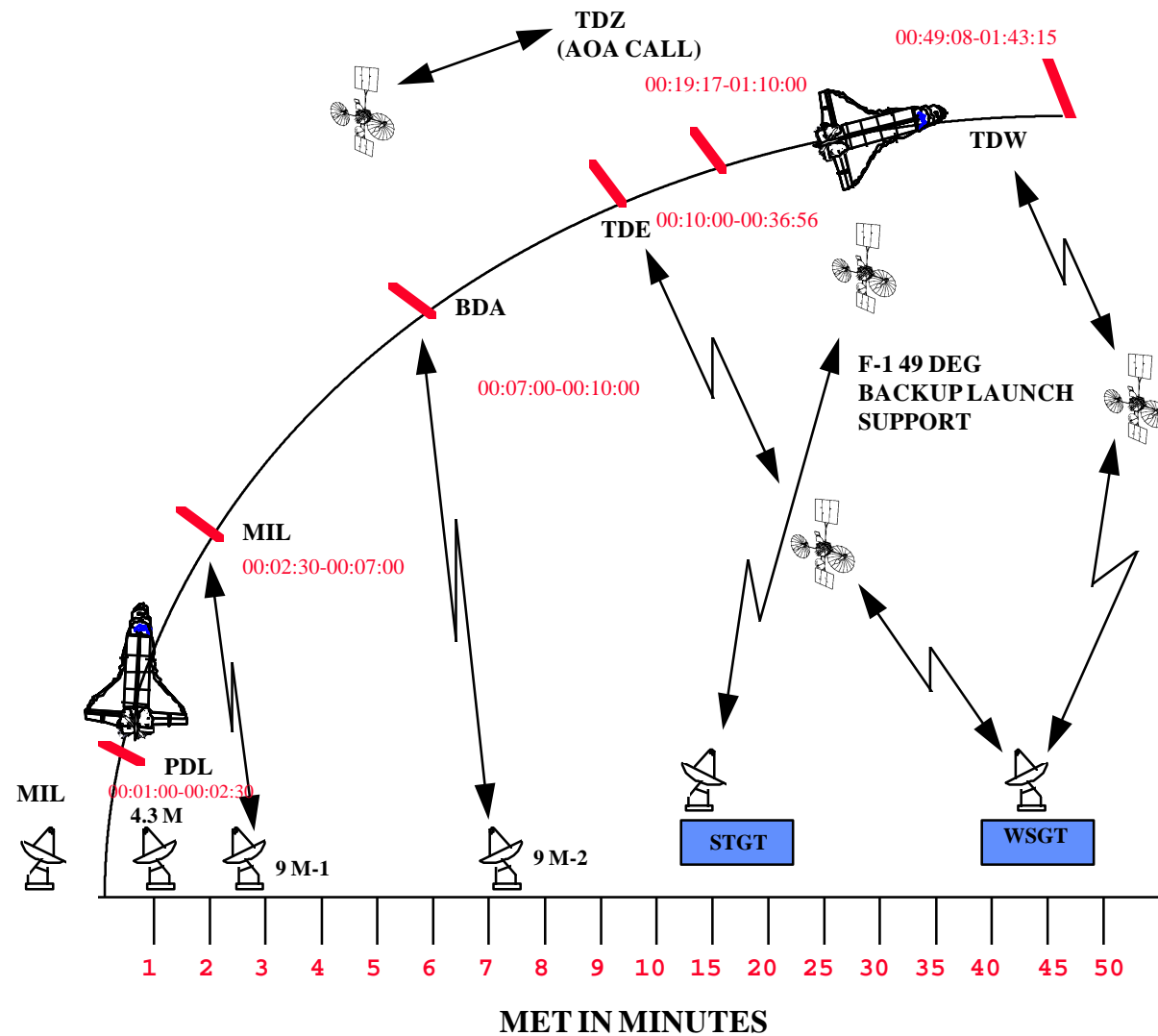
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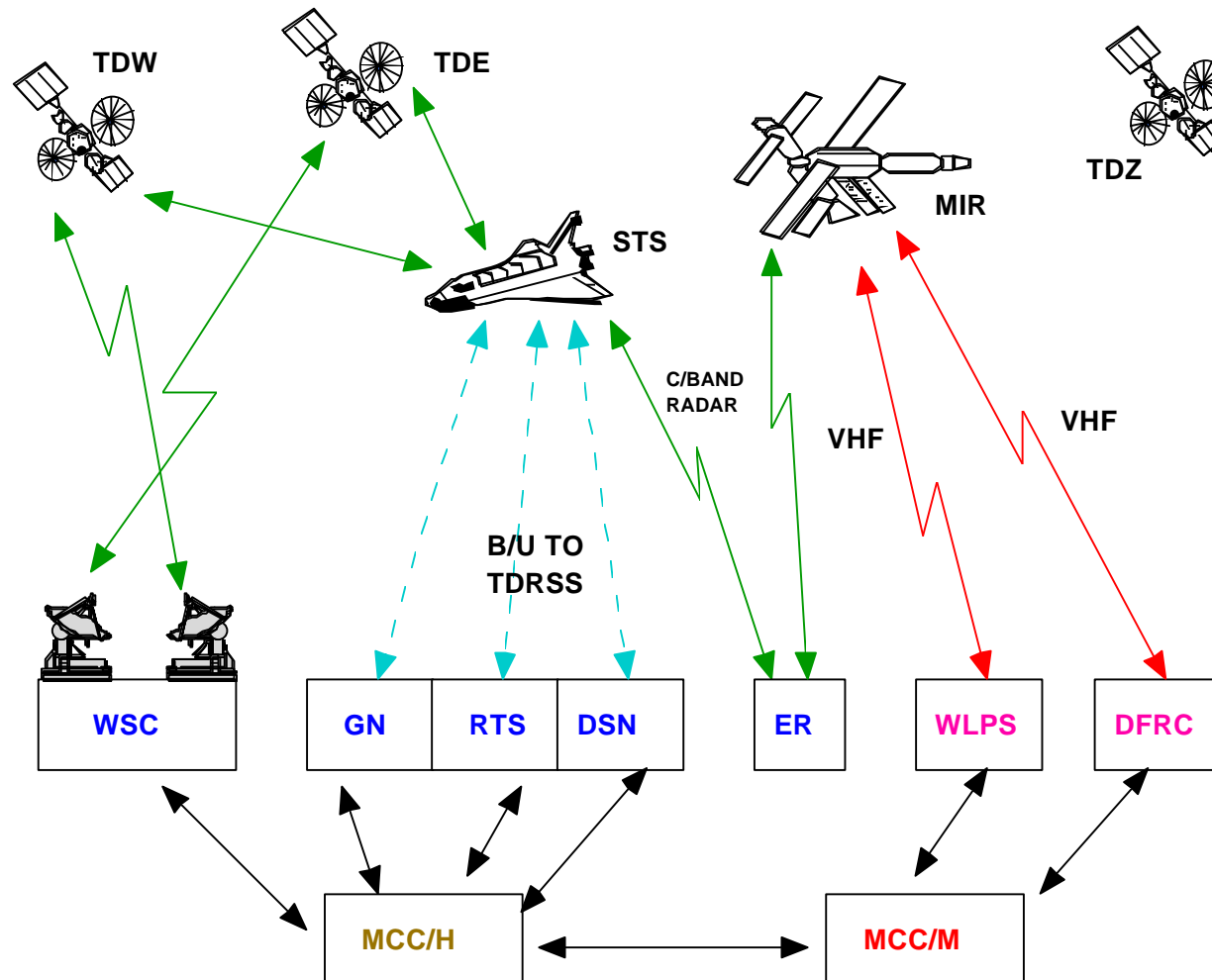
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LAUNCH COVERAGE



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NETWORKS****MIR/ORBITER RENDEZVOUS/DOCKING SUPPORT COVERAGE**

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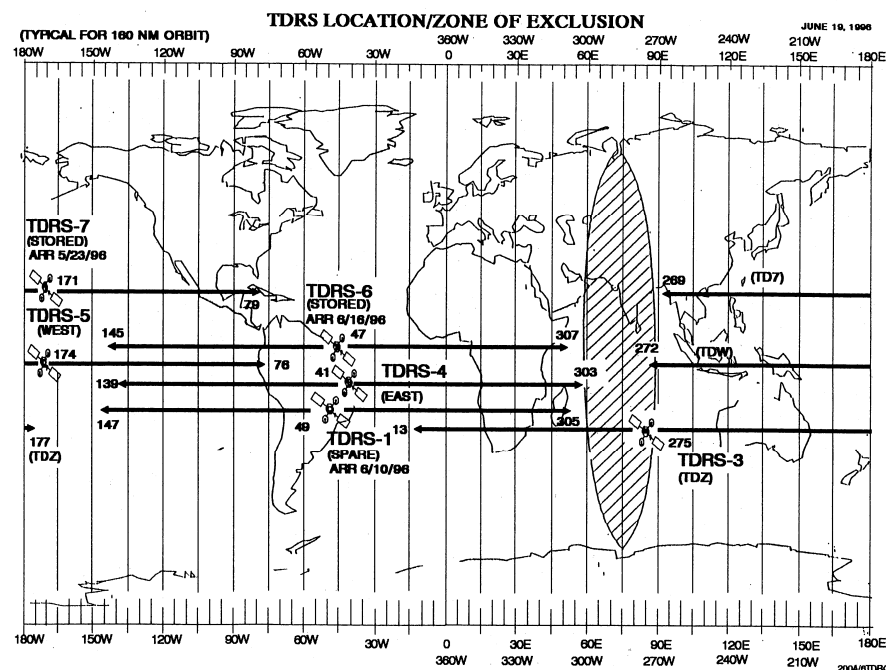
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NETWORKS

ZOE COVERAGE

- FORWARD/RETURN LINK SUPPORT
 - AOA (BACKUP TO TDE)
 - DOCKING
 - UNDOCKING
 - L-1 DAY CHECK
 - DE-ORBIT BURN

<u>ORBIT</u>	<u>MET</u>	<u>COMMENTS</u>
1		TO COVER OMS-2
30-31		DOCKING
107		UNDOCKING
TBS	TBS	L-1 DAY CHECK
157	10/03:00	DE-ORBIT BURN COVERAGE



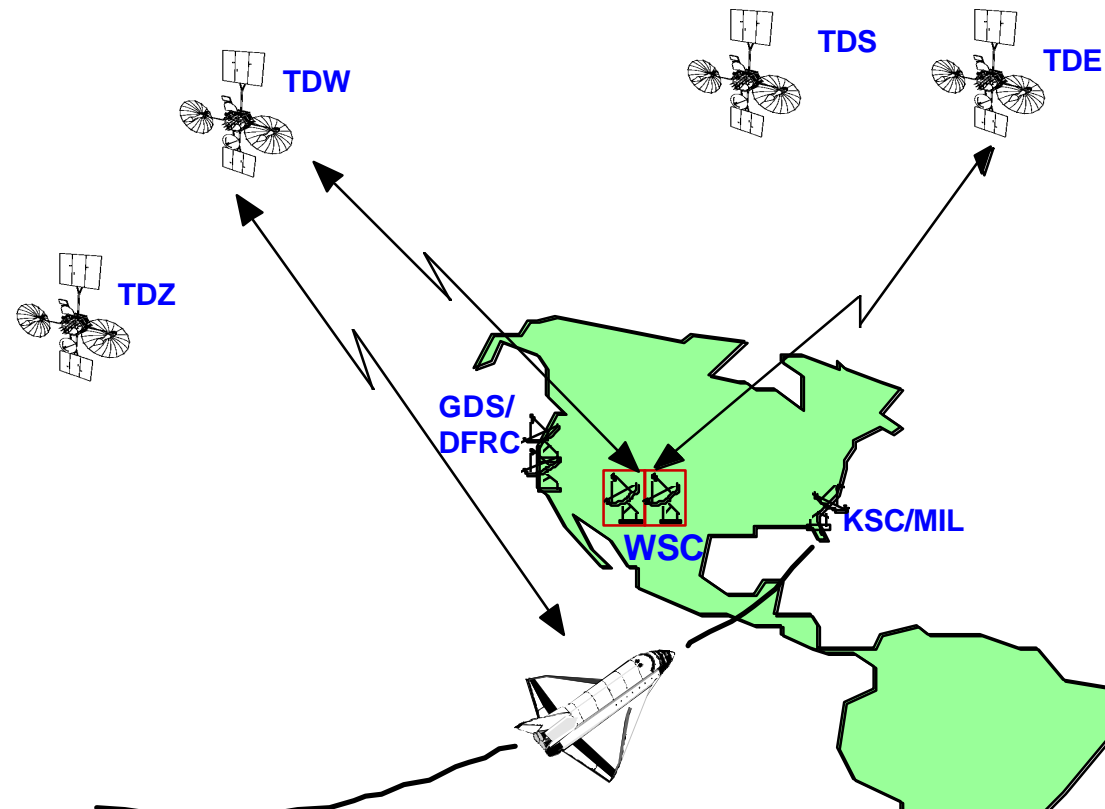
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LANDING COVERAGE




- | | |
|------------|--|
| TDS | Available during terminal landing phase |
| TDZ | Available for De-Orbit Burn coverage |
| TDW | Used to track Shuttle until handover to MILA |
| TDE | Available for use at INCO discretion |

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SIGNIFICANT CHANGES

- **BERMUDA - EQUIPMENT INSTALLATION/CHECKOUT IN PROGRESS**
 - **NEW DIGITAL RECORDERS TO BE USED FOR ENGINEERING EVALUATION IN PARALLEL WITH STANDARD CONFIGURATION**
- **DRYDEN**
 - **ATF-1 TRIPLEX ANTENNA DOWN FOR SYSTEM UPGRADES - 12/16-1/14**
 - **AFFECTS AVAILABILITY OF BACKUP S-BAND ANTENNA FOR A FIRST DAY EDWARDS LANDING**
- **5 SOPS/AFSCN**
 - **GSFC/JSC PTP INTERFACE**
 - **REPLACES MDM**
 - **SUCCESSFULLY CHECKED OUT DURING STS-80**

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SIGNIFICANT CHANGES (CONT)

- **WSC**
 - **SOFTWARE DELIVERY (STGT - DECEMBER 11, 1996 AND WSGT - DECEMBER 16, 1996)**
 - **96003I - 6 DR's (TT&C) CORRECTS VECTOR PROCESSING ANOMALIES**
 - **6 1/2 MIN SCHEDULE SEPARATION CRITERIA (SAME TDRS/ANY USER)**
 - **TWO VECTORS (SAME USER) WITH EPOCHS SEPARATED BY LESS THAN 1 SECOND**
 - **96004 - USS MA SERVICES**
 - **CORRECTS MA SCHEDULING ANOMALIES**
 - **FIRMWARE-FW 96D - DELIVERY TO WSC IN LATE DECEMBER**
 - **INTEGRATED RECEIVER SETUP**
 - **CORRECTS LEAP YEAR ROLLOVER**
 - **TEST MODEM SET UP**

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NETWORKS****SIGNIFICANT CHANGES (CONT)**


- **NASA INTEGRATED SUPPORT NETWORK (NISN) - FORMERLY NASCOM**
 - **IP TRANSITION**
 - **NON-INTRUSIVE EVALUATION OF CONVERSION DEVICES CONTINUES**
 - **STS-80 POST LANDING TEST ON IP INTERFACE CONDUCTED SUCCESSFULLY**
- **C-BAND RADARS**
 - **FRCC (DRYDEN) DOWN FOR SYSTEM UPGRADES - APRIL 1996 - JANUARY 31, 1997**
 - **EFFC (EDWARDS) WILL BE AVAILABLE**

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STS-80 NETWORKS ANOMALIES

- **IN-FLIGHT ANOMALY - GC-O1**
 - **WSGT TT&C SOFTWARE FAILURE OCCURRED PRIOR TO WSF GRAPPLE - TDW ANTENNA STOPPED AT 11/26/0054Z (ORBIT 99)**
 - **FAILOVER TO BACK-UP TT&C WAS SUCCESSFUL - 0054Z**
 - **SCHEDULE INFO DID NOT TRANSFER DUE TO SCHEDULE PROCESS ERROR (TKUTS_PROC) AT WSGT**
 - **TDZ BROUGHT UP MANUALLY TO COVER OUTAGE AT 0106Z**
 - **TDW SCHEDULE ORDER RE-ENTERED AND BECAME ACTIVE AT 0125Z**
 - **ORBITER WAS POINTED TO TDZ**
 - **EARLY TDE SCHEDULE ORDER ENTERED AND BECAME ACTIVE AT 0145Z**
 - **WSC INVESTIGATION**
 - **EXEC COMPUTER RELATIONAL DATA BASE (RDB) RESOURCE DEADLOCK CAUSED THE SOFTWARE PROCESS ANOMALY**
 - **ANOMALY HAS BEEN OBSERVED PREVIOUSLY AT WSC**

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STS-80 NETWORKS ANOMALIES (CONT)

- **IN-FLIGHT ANOMALY - GC-O1 (CONT)**
 - **OPERATIONAL WORKAROUNDS**
 - **TWO PROCEDURES IDENTIFIED IN ALERT NOTICE**
 - **ACTIVE SCHEDULE ORDER CANCELLATION AND RESUBMISSION**
 - **WSC (10 mins) OR NCC (15 mins)**
 - **CORRECTIVE ACTION**
 - **SHORT TERM**
 - **IMPLEMENT OPERATIONAL WORKAROUND IDENTIFIED IN ALERT NOTICE**
 - **PRIORITY INCREASED TO “OPS PRIORITY LIST”**
 - **LONG TERM**
 - **SOFTWARE FIX TO GENERATE AN ALERT TO SYSTEMS AND OPERATORS TO REDUCE RECOVERY TIME**
 - **TARGET DELIVERY FOR SOFTWARE FIX IS 97002 PLANNED DURING 1ST QTR CY 1997**

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NETWORKS****CONFIGURATION MANAGEMENT**

- **HARDWARE/SOFTWARE FREEZE**
 - **INTEGRATED NETWORKS FREEZE WILL BE IMPOSED AT LAUNCH MINUS 10 DAYS**
 - **EXEMPTIONS ARE APPROVED BY THE NETWORK DIRECTOR AND APPROPRIATE DIVISION CHIEFS**
- **CRITICAL PERIOD RESTRICTIONS**
 - **MAINTENANCE AND TESTING RESTRICTIONS ARE IMPOSED ON SPACE AND GROUND NETWORK ELEMENTS DURING CRITICAL MISSION PERIODS**

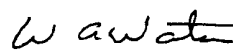
GODDARD SPACE FLIGHT CENTER

CERTIFICATE OF MISSION OPERATIONS AND DATA SYSTEMS DIRECTORATE (MO&DSD) NETWORKS READINESS

THIS IS TO CERTIFY THAT WITH SUCCESSFUL COMPLETION OF FLIGHT
READINESS PREPARATIONS AND CLOSURE OF ASSOCIATED ACTION ITEMS, ALL
MO&DSD ELEMENTS AND INTEGRATED NETWORKS ARE READY
TO SUPPORT THE STS-81 S/MM-05 SPACEHAB-DM MISSION.


G. A. MORSE
SPACE SHUTTLE
NETWORK DIRECTOR


12/12/96
DATE


W. WATSON
ASSISTANT CHIEF
NETWORKS DIVISION

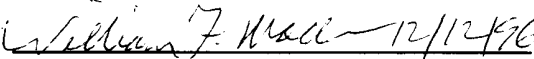
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DATE


R. STELMASZEK
HUMAN SPACE FLIGHT
MISSION SUPPORT MANAGER

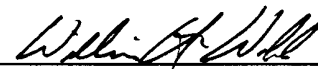
12/12/96
DATE


W. FRIEDMAN
NMOS PROGRAM
MANAGER

12/12/96
DATE


W. MACK
OFFICE OF FLIGHT
ASSURANCE

12/12/96
DATE


JON Z. WALKER
HEAD, INTEGRATION AND
OPERATIONS MANAGEMENT

12/12/96
DATE